

BOOK REVIEWS.

Watson's Drawing-Down and Staving Scales.—Messrs. Longmans, Green and Co., 39 Paternoster Row, London, are now placing on the market a very simple and handy little instrument for the use of blacksmiths and forgers. It consists of a number of scales drawn on celluloid, and mounted on cardboard, folding up like a book, and measuring when closed about 10 in. by 2 in. The scales being on the inside of the cardboard when folded, are protected from dirt and injury. They are for reckoning the allowance required for drawing down a bar to smaller dimensions, or for reckoning the allowance necessary for staving to larger dimensions. There are four scales; one for round to round and square to square; and one for square to round; one for round to square, and one for flats, with a table on the reverse side to be used in conjunction with this scale. The instrument is sold at 2s. 6d.

Practical Smithing and Forging.—By Thomas Moore, foreman and practical smith. London: E. and F. N. Spon, Limited, 57 Haymarket, pp. 248, 401 illustrations and numerous tables; $7\frac{1}{2}$ " x $5\frac{1}{4}$ ", 5s. net.

This excellent manual supplies a long-felt want. Like the sacred Vedas of India, the art of blacksmithing, from the days of Vulcan until now, has been largely a matter of memory-secrets handed down from one generation to another. What, hitherto, has been a tradition is now a science. This effort of Mr. Moore to systematize the operations of the smithy and forge is undoubtedly the most successful popular attempt yet made. He is to be congratulated on having furnished to the works manager, draughtsman, estimator, and even the rank and file blacksmith, a practical treatise simply invaluable.

Tables for the Use of Blacksmiths and Forgers.—By John Watson, lecturer in engineering, for Ayr County Committee, Scotland. London: Longmans, Green & Co., 39 Paternoster Row, E.C., $6\frac{1}{4}$ x $4\frac{3}{4}$, 2s. 6d. net.

This unpretentious, but exceedingly useful little hand-book, ought to find a place on every draughtsman's desk; for in a clear, and easily understood manner, it shows the necessary allowances to be made in ordering iron and steel for the forging of shafts, spindles, hoops, etc. The author says,—"I have frequently been asked by young smiths for assistance in connection with calculations relating to their work, and have observed that the information required is generally about allowances for staving and drawing down, lengths of material to form hoops, and estimation of weights." To meet a general want, therefore, he has prepared on a unique plan, the tables, fully worked out calculations, and detailed instructions contained in this pocket-book of 88 pages.

Batter Tables.—By C. G. Wrentmore, C.E., Assistant Professor Civil Engineering, University of Michigan. New York: Engineering News Publishing Company, 10" x $8\frac{1}{2}$ ", \$5 net.

Seeing that structural steel work is coming into more extensive use, and competition among manufacturers becoming keener with every change of the moon, the survivors in the struggle will be those who effect the greatest economy in the production of work. The drawing office is the last place where cutting down of staff, and scrimping of wages should begin. But anything which will facilitate calculations in the designing of structures, and reduce to a minimum the chances of error in the draughting room, should be eagerly welcomed. A bridgework draughtsman ignorant of the use of Vega's seven decimal, logarithmic tables, would be as much a laughing-stock as a geographer ignorant of the use of the globes. We predict that the time is not far-distant when the knowledge and use of Wrentmore's Batter Tables will be just as essential. As the author states in the preface, his book is not intended to take the place of the standard tables of squares and logs; but to supplement them. The tables are arranged for 192 batters, from 1-16", 1-8", 3-16", to 12" per foot. Giving altitude and hypotenuse in feet and decimals of feet, for any base measured in feet, inches and sixteenths. An illustrative example showing the application of the tables is given, in the form of a knee brace from a column to a

truss; accompanied by a lucid explanation. The book is printed on good paper, in large type, and is strongly bound in buckram. It is a credit to both author and publisher.

Technical Education in Evening Schools.—By Clarence H. Creasey, London: Swan Sonnenschein & Co., Limited, 25 High Street, Bloomsbury, W.C., pp. 309, $7\frac{1}{2}$ " x $5\frac{1}{4}$ ", 3s. 6d. net.

A thorough and efficient system of technical education is one of Canada's greatest needs. The country is crossing the threshold of a great industrial movement; due to the development of abundant mineral, water-power, and agricultural resources. The chances are, however, that unless a great and quick change takes place, the executive prizes will not fall to the lot of our Canadian youth; they will go to the better equipped United Statesonian, and British mechanics and artisans. Why? Because they have had better opportunities for getting a sound technical education than the average Canadian. In 1902, the writer held as part of his temporary duties the post of chief of the Employment Bureau to the British-Westinghouse Co., Manchester, England—a plant covering 130 acres, and now employing some 6,000 men. Every applicant had to submit his record on a form provided by the company. One of the astonishing things was, the number of mechanics, who had on their credentials, first-class applied mechanics; first-class machine drawing and construction; first-class electricity and magnetism; first-class steam; first-class chemistry, etc., etc. When asked for proof, straightway produced certificates from the British Government Science and Art Department, gained in the annual examinations in connection with evening science and art classes! In 1902-3, there were 657,000 students attending these evening classes in England. This is one of the secrets of the phenomenal progress in the iron and steel industries of the United States during the last twenty years—they got the cream of this intelligent artisan class of England. It is a fact, susceptible of abundant proof, that in all the great workshops in Philadelphia, Pittsburg, Cleveland, and Chicago, the responsible positions were largely held by Britishers, attracted by higher wages; many of whom gained their superior technical training in evening science classes under Governmental auspices.

The book before us, is an admirable exposition of the British system of evening technical classes, showing its advantages on the one hand, and shortcomings on the other, at the same time offering wise suggestions for improvements in the system. To everyone interested in the technical education of the youth of the Dominion, this book will be a revelation of remarkable educational work, which the Government of Great Britain has been fostering for years.

The Derry-Collard Company, New York. American Stationary Engineering.—By W. E. Crane; pp. 285, 107 illustrations; 8" x 6"; \$2.

Practical Papers:—

I. Turning and Boring Tapers.—By Fred. H. Calvin, 2nd edition, pp. 25, 8" x $5\frac{1}{2}$ ", 25 cents.

VI. Wiring a House.—By Herbert Pratt, pp. 21, 8" x $5\frac{1}{2}$ ", 25 cents.

The recent legislation in Ontario making it compulsory for stationary engineers to hold a license secured by examination before taking charge of steam plants over 50-H.P., renders a comprehensive knowledge of modern power-house installations absolutely necessary. Mr. Crane's book has been written to supply this very need. It contains "facts, rules, and general information gathered from thirty years' practical experience as running, erecting, and designing engineer." The book is written with a simplicity of style, lucidity of exposition, and absence of academic affectation, which always characterises work done by men who have a mastery of the subject upon which they discourse. The stationary engineer who reads, marks, learns, and inwardly digests the reasoning and data contained in this eminently practical volume, need have no fear of facing any competent board of examiners in Canada.

The same publishers send us two of their practical papers. The one on "Turning and Boring Tapers,"